PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P/64000.WOP	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/EP2004/003465	International filing date *(day/month/year)* 01.04.2004	Priority date *(day/month/year)* 01.04.2003
International Patent Classification (IPC) or national classification and IPC H04L29/12		
Applicant TELNIC LIMITED et al.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 8 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *sent to the applicant and to the International Bureau)* a total of 7 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
01.02.2005	14.06.2005
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Peeters, D Telephone No. +31 70 340-4323

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/003465

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

5-13	as originally filed
1-4	received on 28.02.2005 with letter of 28.02.2005

Claims, Numbers

1-9	received on 28.02.2005 with letter of 28.02.2005

Drawings, Sheets

1/4-4/4	as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-9
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-9
Industrial applicability (IA)	Yes:	Claims	1-9
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

1 Independent claims 1, 6 and 7 do not fulfill the requirements of Article 33(3) PCT for the following reasons:

1.1 Claim 1

Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document), in terms of claim 1:

a communications system (page 19 line 16-page 22 line 15) comprising a first database (Fig.2, "Name server") and a second database (Fig.2, "Identity server"), the first database comprising data identifying a system user ("Personal Domain Name PDN") and the second database comprising one or more data sets relating to a system user (Fig.3, page 25 line 14-page 27 line 19; "Identity, identity information"), wherein

I) the first database additionally comprises data indicating the location of the one or more data sets relating to that user (page 24 lines 5-28, "...DNS records mapping hans.hurvig.dk to the Internet Protocol address of is.dihost.dk.");

ii) the second database comprises a plurality of data sets relating to a system user (page 25 line 14-page 27 line 13, see for example Table I "Friends" and page 26 lines 33-34); and

the system further comprises data defining a relationship between the plurality of data sets (page 25 line 14-page 27 line 13, see especially Table I).

The subject-matter of claim 1 differs from this known system in that:

the system comprises a third database, the third database comprising hierarchical data defining a relationship between the plurality of data sets.

The problem to be solved by the present invention may therefore be regarded as having to modify a plurality of data sets held in an extensive and heavily consulted database in the event that the relationships are redefined.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

The feature of providing an extra database comprising hierarchical data defining a relationship between a plurality of data sets is described in document D3 page 4

paragraphs 40-43 as providing the same advantages as in the present application. The person skilled in the art of distributed databases would regard it as a normal design option to put the relationship information for each data set contained in a corresponding Table I (D1, page 25 line 31-page 26 line 20) into a separate database in order to solve the problem posed. In document D1, page 6 lines 26-27, the skilled person is already hinted at the fact that "access rules may also be enforced by a computer or server (this server corresponds to the third database of claim 1) communicating with the identity site or identity server (this server corresponds to the second database of claim 1)".

1.2 Claim 6

Present claim 6 is a representation of present claim 1 in terms of a mobile communications device configured to perform method steps, and the arguments with respect to the obviousness of the subject-matter of claim 1 similarly apply to claim 6. Consequently, the subject-matter of claim 6 also does not contain an inventive step in the sense of Art. 33(3) PCT.

1.3 Claim 7

Document D2, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document), in terms of claim 7: a communications system comprising a first database and a second database (paragraphs 20-21 and 24-40, Figures 1, 2 and 3), wherein

the first database (paragraph 34, Fig. 2 reference 212) comprises a plurality of first data records, each of the first data records being associated with a registered user of the communications system and comprising a registered user identifier and a data resource locator (paragraph 20: "... domain name and name and address of the owner of this registered domain name");

the second database (paragraph 40, Fig. 3 reference 310) comprises a plurality of second data records, each of the second data records being associated with a registered user of the communications system and comprising one or more data sets associated with that registered user (paragraphs 40 and 58),

the system being configured such that when a first data record is added to the first database, the system adds a second data record to the second database, the contents of the second data record being derived from the data submitted to the first

database (paragraphs 20-21).

The subject-matter of claim 7 differs from this known system in that:
the system further comprises a third database, the third database comprising a plurality of third data records, each third data record being associated with a registered user further associated with a first data record and a plurality of second data records, wherein each third data record comprises hierarchical data defining a relationship between the plurality of second data records.

The problem to be solved by the present invention may therefore be regarded as having to modify a plurality of data sets held in an extensive and heavily consulted database in the event that the relationships are redefined.

The solution proposed in claim 7 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:
The feature of providing an extra database comprising hierarchical data defining a relationship between a plurality of data sets is described in document D3 page 4 paragraphs 40-43 as providing the same advantages as in the present application.
The person skilled in the art of distributed databases would regard it as a normal design option to include this feature in the system described in document D2 in order to solve the problem posed.

2 The subject-matter of present dependent claims 2-5 and 8-9 are a mere superposition of features already known from documents D1, D2 and D3 without the exercise of inventive skill (see also PCT International Preliminary Examination Guidelines III-13.05):
The additional feature of claims 2 and 9, including a search engine, is considered to be an obvious design option to the person skilled in the art (see for example document D2, paragraph 74).
The additional features of claims 3-5 are considered to be obvious design options to the person skilled in the art (see for example document D1 and the corresponding passages cited in the search report).
The additional feature of claim 8, to have the data resource locator of the first data record indicate the location of the second data record, is considered to be an obvious

design option to the person skilled in the art (see for example document D1 and the corresponding passages cited in the search report).

3 The following should be noted as well:

3.1 An interpretation according to which D3 discloses that a single database is modified such that the data defining the hierarchical relationships between a plurality of entities within a database is held within a hierarchical link table, rather than being held within the different database entities, is not convincing. Indeed, for the purposes of document D3 there is no difference between a "table" and a "database", see document D3 paragraph 14 "Tables (***a type of database***), called 'hierarchical link tables,' ... are prepared". Even if there were a difference between a "table" and a "database", if the database consists of only one table the database contains the same data as the table.

3.2 Furthermore, it is not the authorized officer's opinion that D3 belongs to a different technical field and therefore that the teaching of D3 would not be relevant to the present invention. Indeed, directory services are based on an underlying collection of databases and therefore document D3, which specifically deals with databases, ***does*** belong to the same technical field and would be taken into account by the skilled person.

3.3 The advantage of only having to modify the data in a third database in the event that hierarchical relationships are redefined, is achieved regardless whether the hierarchical data is held in a separate table or in a separate database.

3.4 An interpretation according to which, if the person skilled in the art were to attempt to combine the teaching of D1 and D3, a hierarchical link table would be added to either the 'name server' or the 'identity server' of D1, rather than adding a third database to the system as is taught by the present invention, is not convincing. Indeed, in an Internet environment (on the priority date of 01.04.2003) it is a mere design option whether to put the hierarchical data in a table incorporated in an existing database (first or second database) or to create a separate database (third database), based on obvious optimization considerations like load balancing, latency, topology, or

policy. Moreover, the passage in document D1, page 6 lines 26-27, already hints the skilled person at the fact that "access rules may also be enforced by a computer or server (corresponding to the third database of claim 1) communicating with the identity site or identity server (corresponding to the second database of claim 1)".

D. Peeters
Examiner

COMMUNICATION SYSTEM

The present invention relates to a communication system, and in particular to a communication system which simplifies the association of an entity (such as a person or organisation) with one or more data sets associated with the that entity.

One of the most important and significant components of the internet infrastructure are domain name servers (DNS). These provide a translation between the numerical internet protocol addresses (for example 192.168.1.1) with the alphabetical addresses that are easier for users to remember and distinguish between (for example yahoo.com). A DNS enables a suitable client to access all the data published within it such that a request comprising an alphabetical address is directed to the correct IP address.

According to a first aspect of the invention, there is provided a communications system comprising a first database and a second database, the first database comprising data identifying a system user and the second database comprising one or more data sets relating to a system user, the system being characterised in that: i) the first database additionally comprises data indicating the location of the one or more data sets relating to that user; ii) the second database comprises a plurality of data sets relating to a system user and iii) the system further comprises a third database, the third database comprising hierarchical data defining a relationship between the plurality of data sets.

The first database, on receiving a first request from a client terminal, may send a first response to the client terminal, the first request comprising identification data for a system user and the first response comprising data indicating the location

of one or more data sets relating to that user. Furthermore, the second database, on receiving a second request from a client terminal, may send a second response to the client terminal, the second request comprising an identification of a requested data set and the second response comprising the requested data set.

The hybrid system in which the registry stores only data associating names, whilst the data items associated with these names are stored externally to the registry in a separate data store, which may be a distributed hierarchical data store such as a DNS. The registry can be informed of sub-domains, allowing the data to be published selectively based on the class of user requesting information and on the access control policies specified for each domain. The configuration of this hybrid system allows the domains and their contained items to be held on a distributed data store that provides one set of data, whilst storing supplementary sets of relational information within a registry that can select which set to return based on the querying user's identity as well as the domain in which they are interested.

This has the benefit of maintaining control for publication of the contained items within the distributed data store; the registry does not store these items but only references to the domain name identifiers. It also ensures that there is only one copy of the data items, whilst allowing different "views" on the relationships between the domains that contain the items based on a querying user's identity.

Having only one copy of the data items removes a problem of synchronization between different systems holding copies. However, information on the hierarchy that relates different domains (that is not normally available to the public through

the DNS system) is stored separately in the registry where it can be provided with controlled access, with different information being provided depending on the identity of the user asking for it.

According to a second aspect of the invention, there is provided a mobile communications device comprising processor means, data storage means, memory means and display means, the device, in use being configured to: i) send a first request comprising a user identifier to a first system database; ii) receive a first response from the first system database comprising a location for a second system database; iii) send a second request to the location of the second system database; iv) receive a second response from the second system database comprising a data set related to the user identifier comprised in the first request; characterised in that the device is configured to v)send a third request to a third system database; and vi)receive a third response from the a third system database comprising hierarchical data defining relationships for the data set received in step iv) between the of second data records.

According to a third aspect of the invention, there is provided a communications system comprising a first database and a second database, wherein: the first database comprises a plurality of first data records, each of the first data records being associated with a registered user of the communications system and comprising a registered user identifier and a data resource locator; and the second database comprises a plurality of second data records, each of the second data records being associated with a registered user of the communications system and comprising one or more data sets associated with that registered user, the system being configure such that when a first data record is added to the first database, the system

adds a second data record to the second database, the contents of the second data record being derived from the data submitted to the first database; the system being characterised in that the system further comprises a third database, the third database comprising a plurality of third data records, each third data record being associated with a registered user further associated with a first data record and a plurality of second data records, wherein each third data record comprises hierarchical data defining a relationship between the plurality of second data records.

Such a system enables the registry to ensure that data is based on the domains that exist in an external database and to limit the ability of external users to create relations based on those domains so that only the person responsible for the creation of that domain is allowed to create relations based on it. The relationship between a registry and an NSP (name service provider) using this automatic notification improves the efficiency of the registrar considerably, whilst minimising the privileged data that flows through the notifications. When a new domain has been created the information on that domain and on the person responsible for its creation is only known to the registrar. The NSP gets this information through an automatic notification process.

The relationship between a registrar and an NSP using this automatic notification process simplifies the registry's subsequent task of capturing data on relations between these names, and additionally other names that are added as part of this process, as they are received as automatic notifications from a trusted source. This supplementary relational data can be used by querying users to relate names to one another. As there can be more than one set of relational data for a

CLAIMS

1. A communications system comprising a first database and a second database, the first database comprising data identifying a system user and the second database comprising one or more data sets relating to a system user, wherein

i) the first database additionally comprises data indicating the location of the one or more data sets relating to that user;

ii) the second database comprises a plurality of data sets relating to a system user; the system being characterised in that:

iii) the system further comprises a third database, the third database comprising hierarchical data defining a relationship between the plurality of data sets.

2. A communications system according to claim 1, the system further comprising a search engine, the search engine, in use, accessing data stored in the first database and/or the second database.

3. A communications system according to any preceding claim, wherein the system includes a plurality of one or more of the following group: the first database, the second database, the third database or the search engine.

4. A communications system according to any preceding claim wherein the first database, on receiving a first request from a client terminal sends a first response to the client terminal, the first request comprising identification data for a system user and the first response comprising data

indicating the location of one or more data sets relating to that user.

5. A communications system according to claim 4, wherein the second database, on receiving a second request from a client terminal sends a second response to the client terminal, the second request comprising an identification of a requested data set and the second response comprising the requested data set.

6. A mobile communications device comprising processor means, data storage means, memory means and display means, the device, in use being configured to:

i) send a first request comprising a user identifier to a first system database;

ii) receive a first response from the first system database comprising a location for a second system database;

iii) send a second request to the location of the second system database;

iv) receive a second response from the second system database comprising a data set related to the user identifier comprised in the first request;

characterised in that the device is configured to

v) send a third request to a third system database; and

vi) receive a third response from the a third system database comprising hierarchical data defining relationships for the data set received in step iv) between the of second data records.

7. A communications system comprising a first database and a second database, wherein:

the first database comprises a plurality of first data records, each of the first data records being associated with a registered user of the communications system and comprising a registered user identifier and a data resource locator; and

the second database comprises a plurality of second data records, each of the second data records being associated with a registered user of the communications system and comprising one or more data sets associated with that registered user,

the system being configure such that when a first data record is added to the first database, the system adds a second data record to the second database, the contents of the second data record being derived from the data submitted to the first database;

the system being characterised in that the system further comprises a third database, the third database comprising a plurality of third data records, each third data record being associated with a registered user further associated with a first data record and a plurality of second data records, wherein each third data record comprises hierarchical data defining a relationship between the plurality of second data records.

8. A communications system according to claim 7, wherein the data resource locator of the first data record associated with a registered user indicates the location of the second data record associated with that registered user.

9. A communications system according to claim 7 or claim 8, wherein the system further comprises a search engine, the search engine configure to search the first and/or the second database.